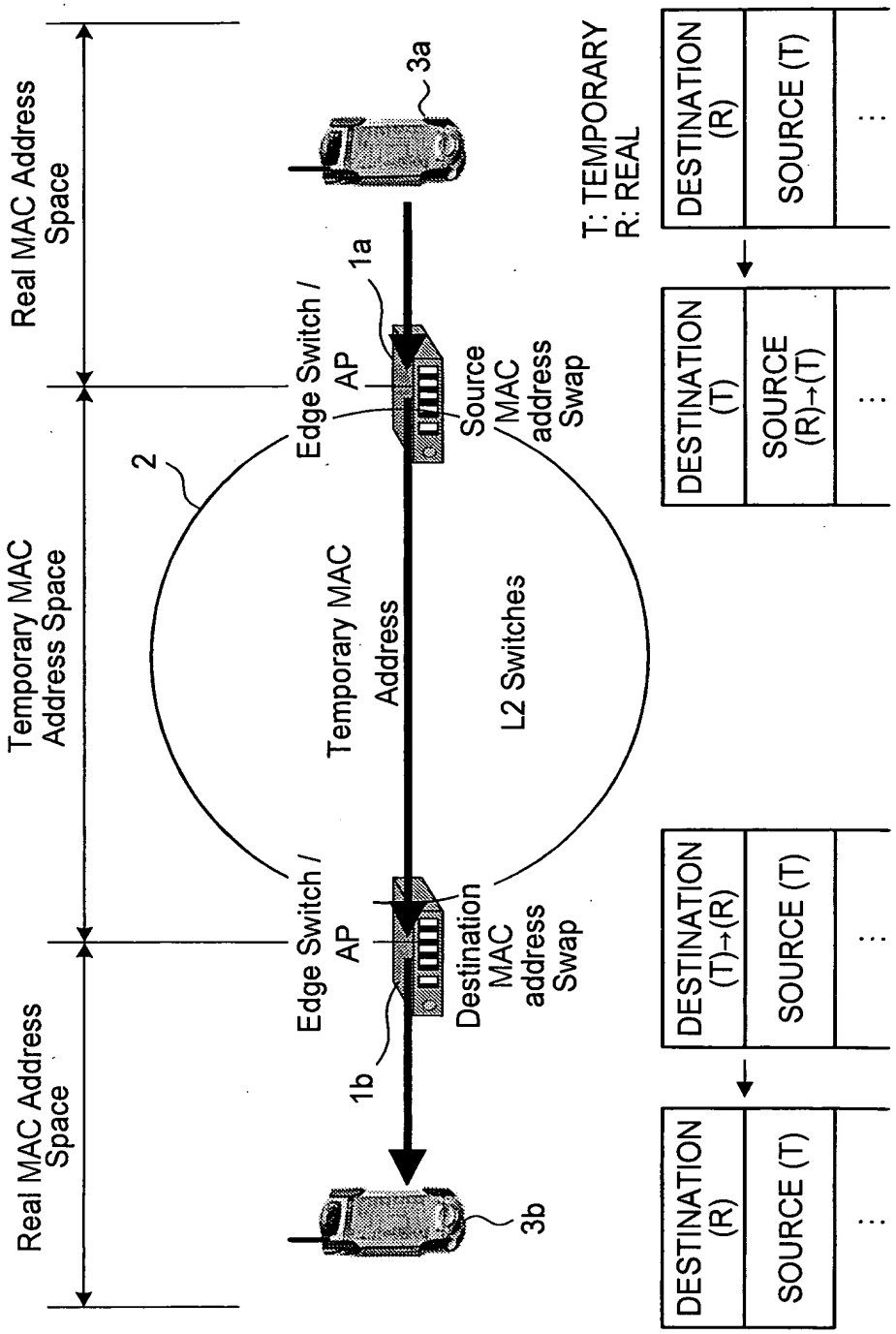
FIG.1



BEST AVAILABLE COPY

FIG.2

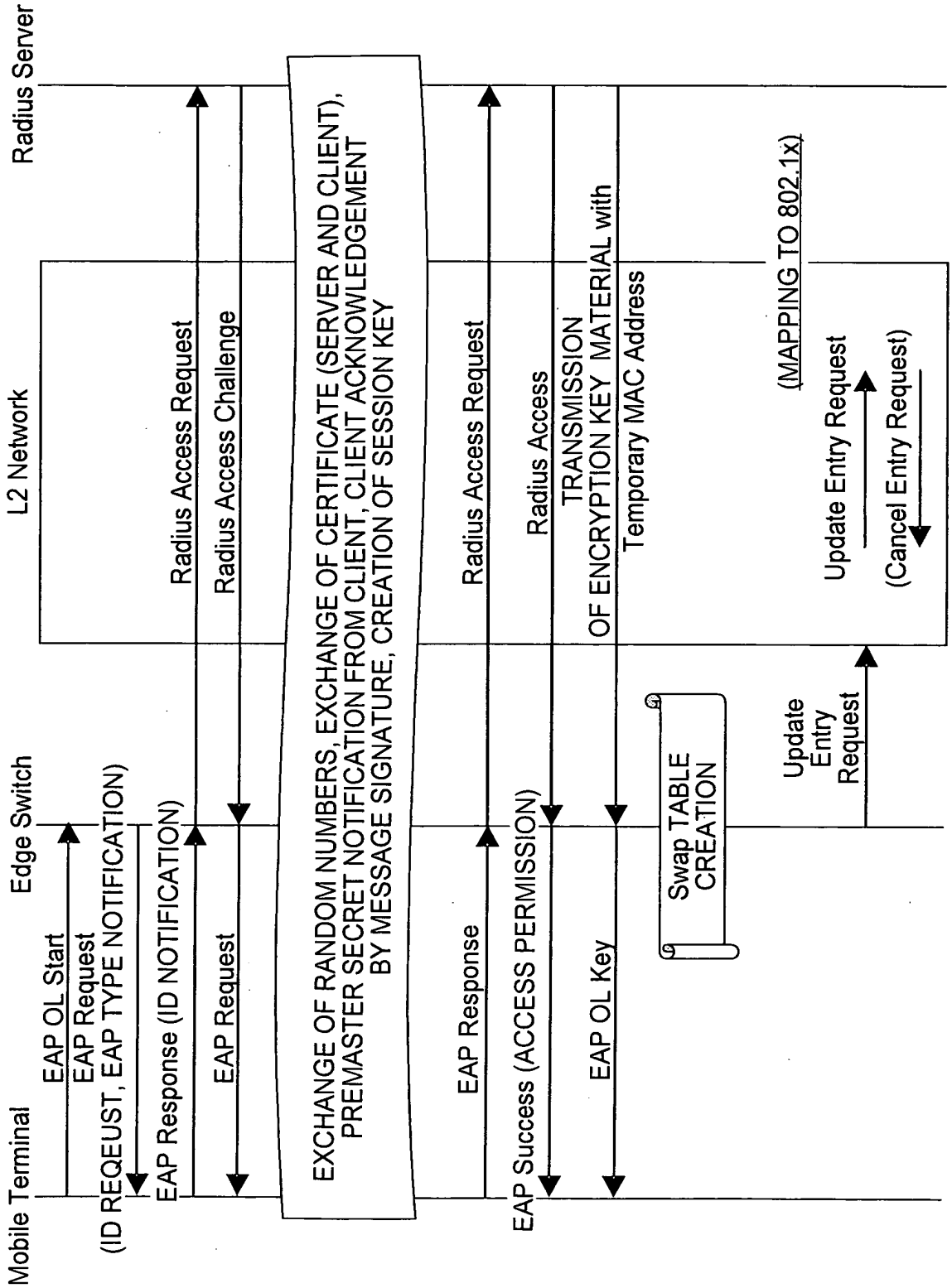

Mobile Terminal
Edge Switch
L2 Network
Radius Server
EAP OL Start
EAP Request
(ID REQEUST, EAP TYPE NOTIFICATION)
EAP Response (ID NOTIFICATION)
EAP Request
Radius Access Request
Radius Access Challenge
EXCHANGE OF RANDOM NUMBERS, EXCHANGE OF CERTIFICATE (SERVER AND CLIENT), PREMASTER SECRET NOTIFICATION FROM CLIENT, CLIENT ACKNOWLEDGEMENT BY MESSAGE SIGNATURE, CREATION OF SESSION KEY
EAP Response
Radius Access Request
EAP Success (ACCESS PERMISSION)
EAP OL Key
Radius Access
TRANSMISSION OF ENCRYPTION KEY MATERIAL with Temporary MAC Address
Swap TABLE CREATION
Update Entry Request
(MAPPING TO 802.1x)
Update Entry Request
(Cancel Entry Request)

FIG.3

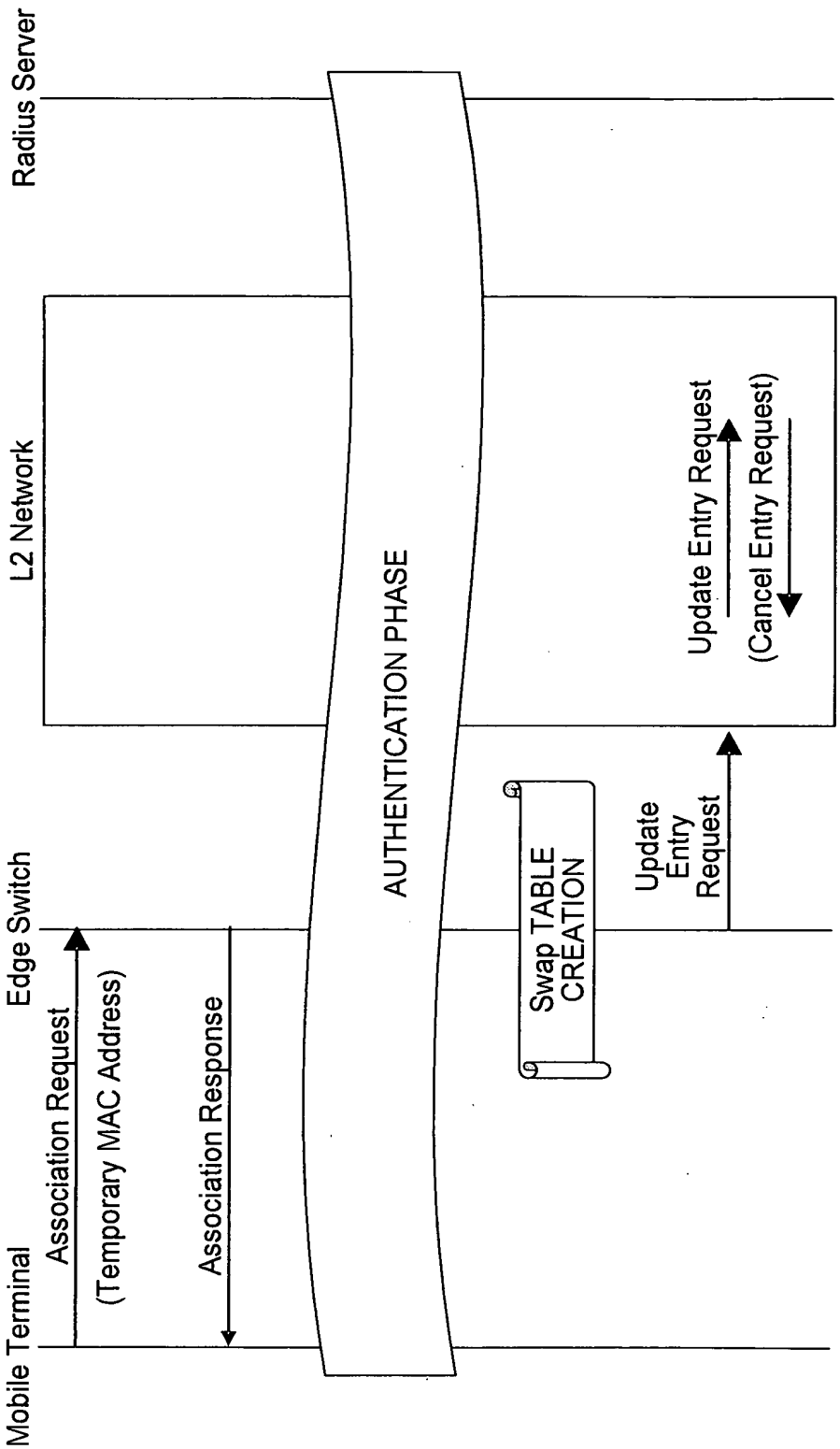

Radius Server
L2 Network
Edge Switch
Mobile Terminal
AUTHENTICATION PHASE
Association Request
(Temporary MAC Address)
Association Response
Swap TABLE CREATION
Update Entry Request
Update Entry Request
(Cancel Entry Request)

FIG.4

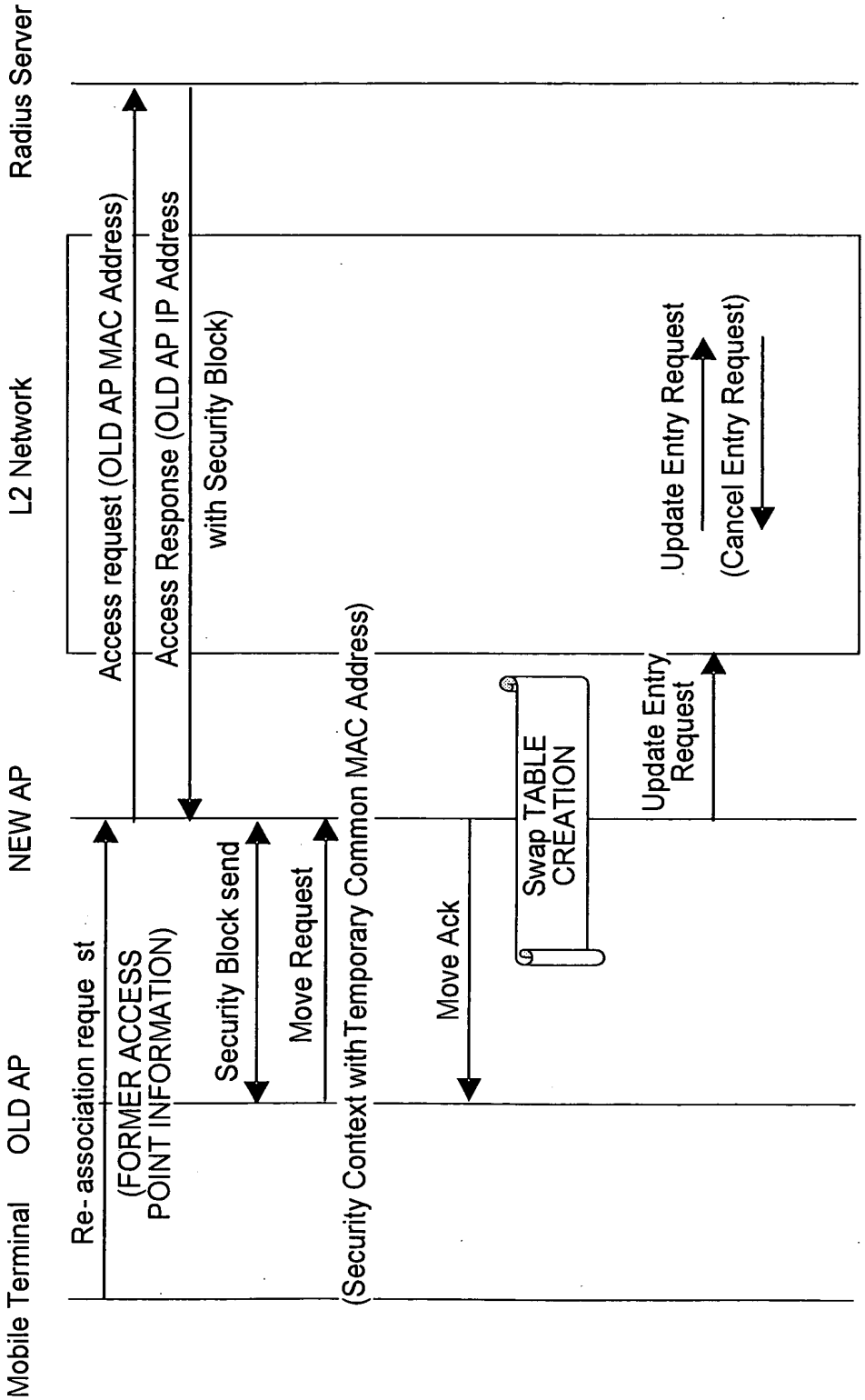
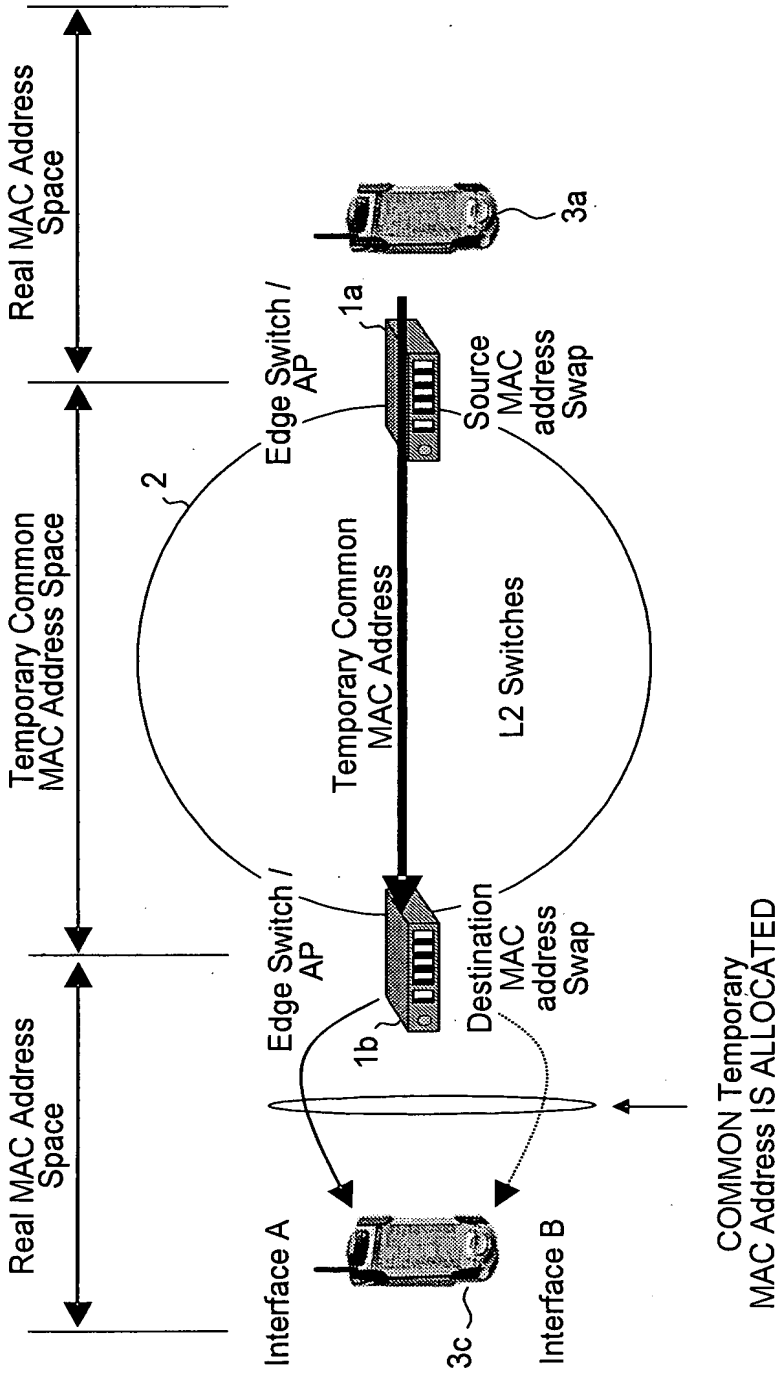

Mobile Terminal
OLD AP
NEW AP
L2 Network
Radius Server
Re- association reque st
(FORMER ACCESS POINT INFORMATION)
Access request (OLD AP MAC Address)
Access Response (OLD AP IP Address
with Security Block)
Security Block send
Move Request
(Security Context with Temporary Common MAC Address)
Move Ack
Swap TABLE CREATION
Update Entry Request
Update Entry Request
(Cancel Entry Request)

FIG.5



BEST AVAILABLE COPY

FIG.6

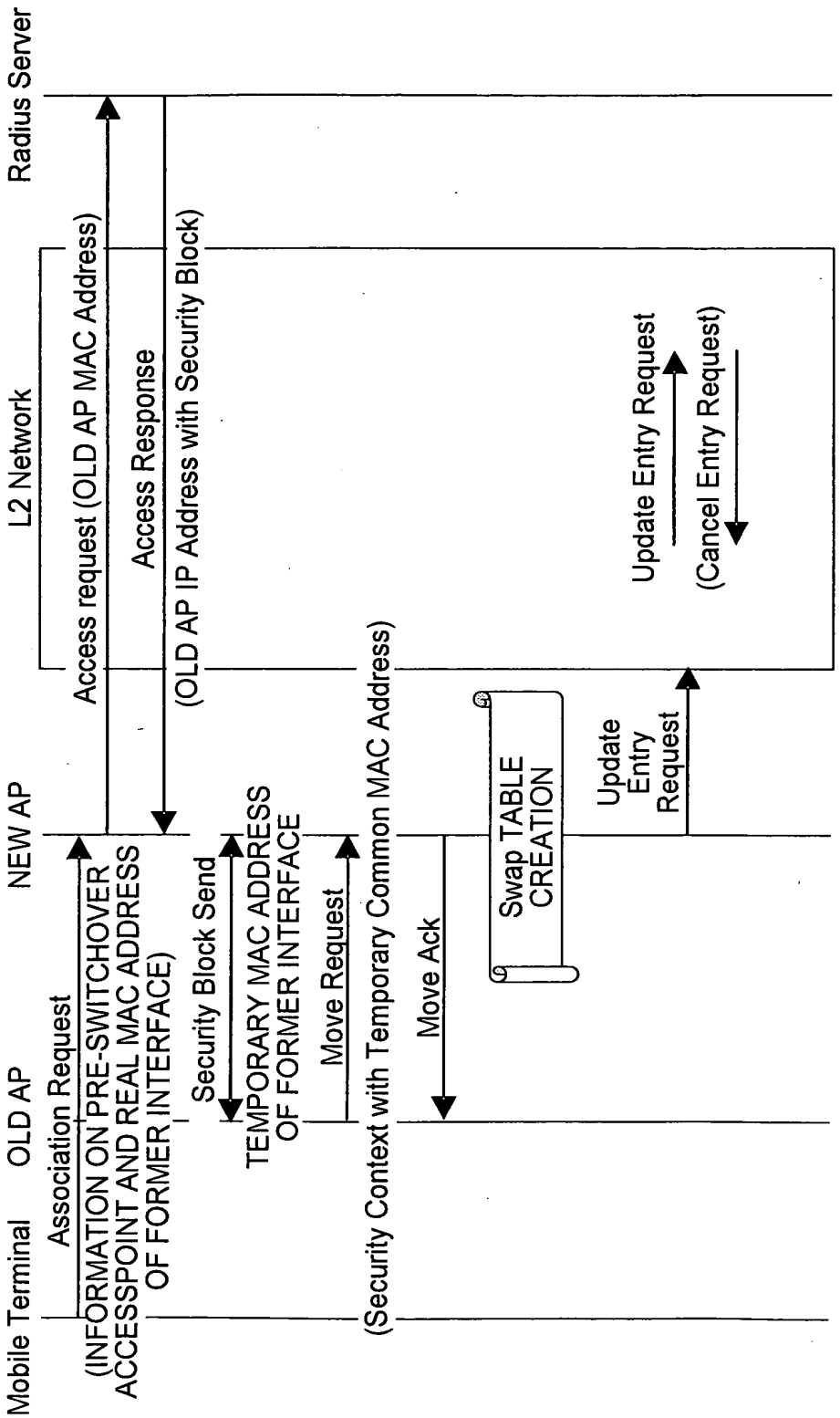

Mobile Terminal
OLD AP
NEW AP
L2 Network
Radius Server
Association Request
(INFORMATION ON PRE-SWITCHOVER ACCESSPOINT AND REAL MAC ADDRESS OF FORMER INTERFACE)
Security Block Send
TEMPORARY MAC ADDRESS OF FORMER INTERFACE
Move Request
(Security Context with Temporary Common MAC Address)
Move Ack
Swap TABLE CREATION
Update Entry Request
Update Entry Request
(Cancel Entry Request)
Access request (OLD AP MAC Address)
Access Response
(OLD AP IP Address with Security Block)

FIG.7

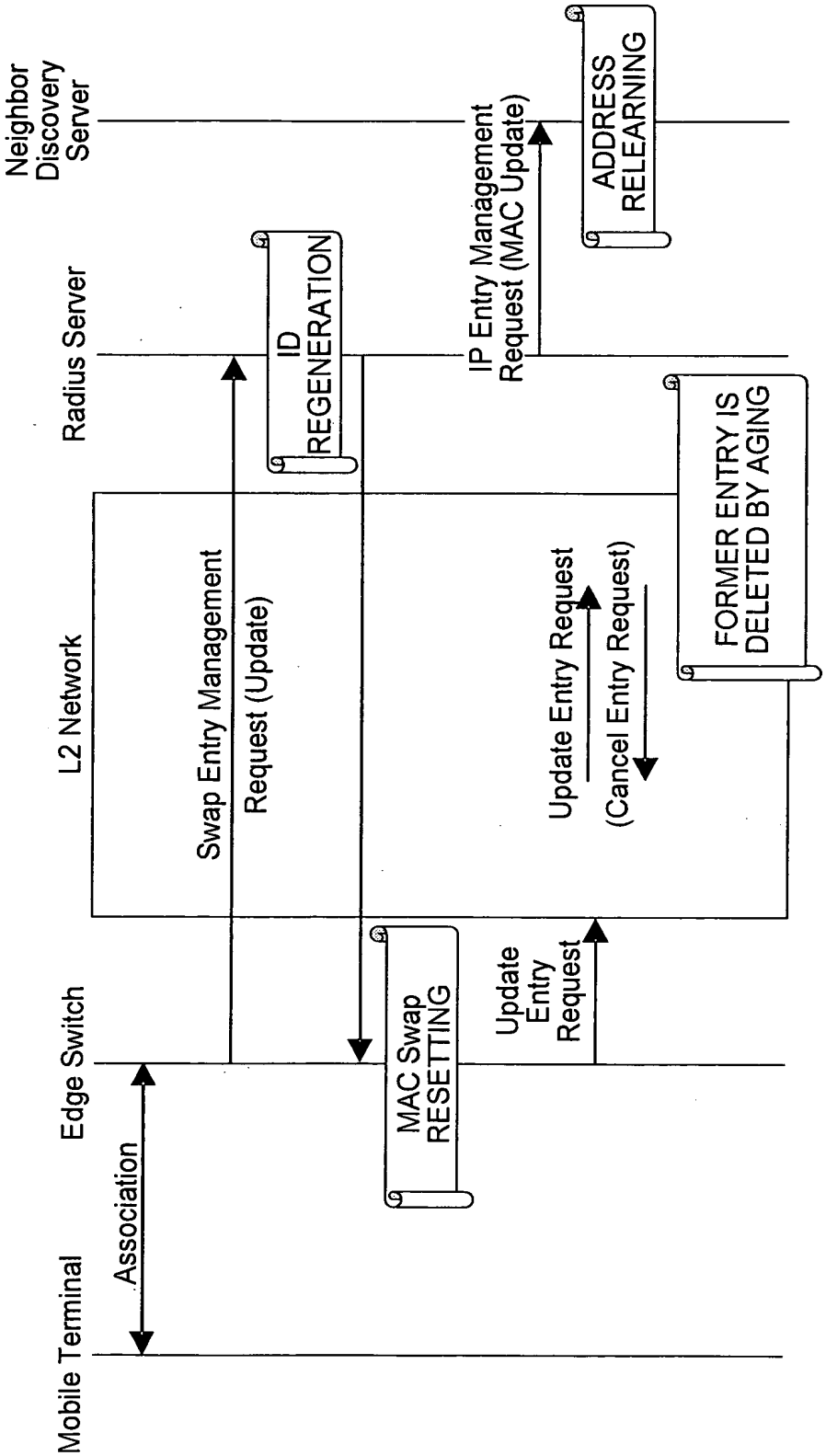

Neighbor Discovery Server
Radius Server
L2 Network
Edge Switch
Mobile Terminal
ADDRESS RELEARNING
IP Entry Management Request (MAC Update)
ID REGENERATION
FORMER ENTRY IS DELETED BY AGING
Swap Entry Management Request (Update)
Update Entry Request
(Cancel Entry Request)
MAC Swap RESETTING
Update Entry Request
Association

FIG.8

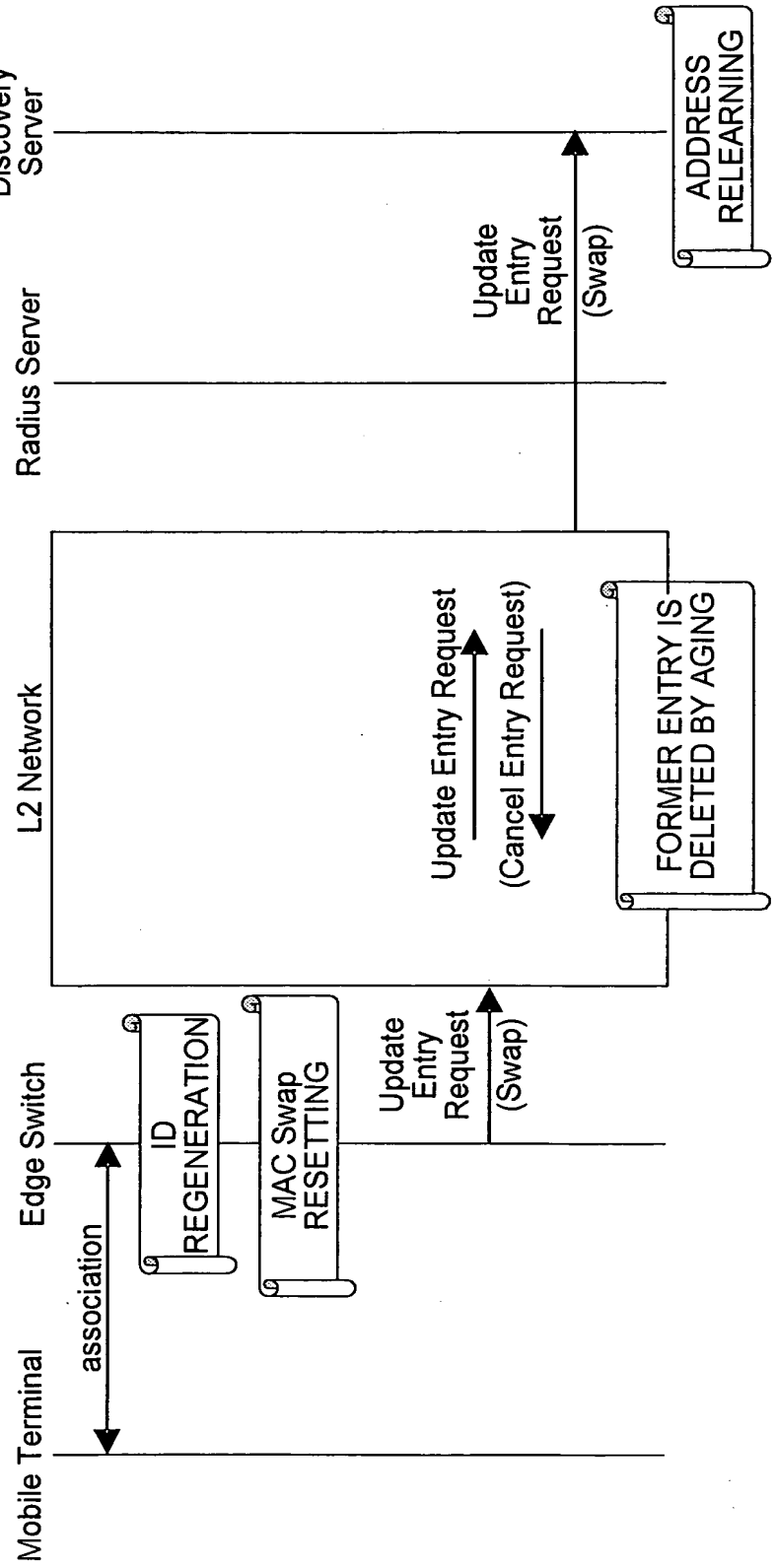

Neighbor Discovery Server
Radius Server
L2 Network
Edge Switch
Mobile Terminal
association
ID REGENERATION
MAC Swap RESETTING
Update Entry Request (Swap)
Update Entry Request
(Cancel Entry Request)
FORMER ENTRY IS DELETED BY AGING
Update Entry Request (Swap)
ADDRESS RELEARNING

FIG.9

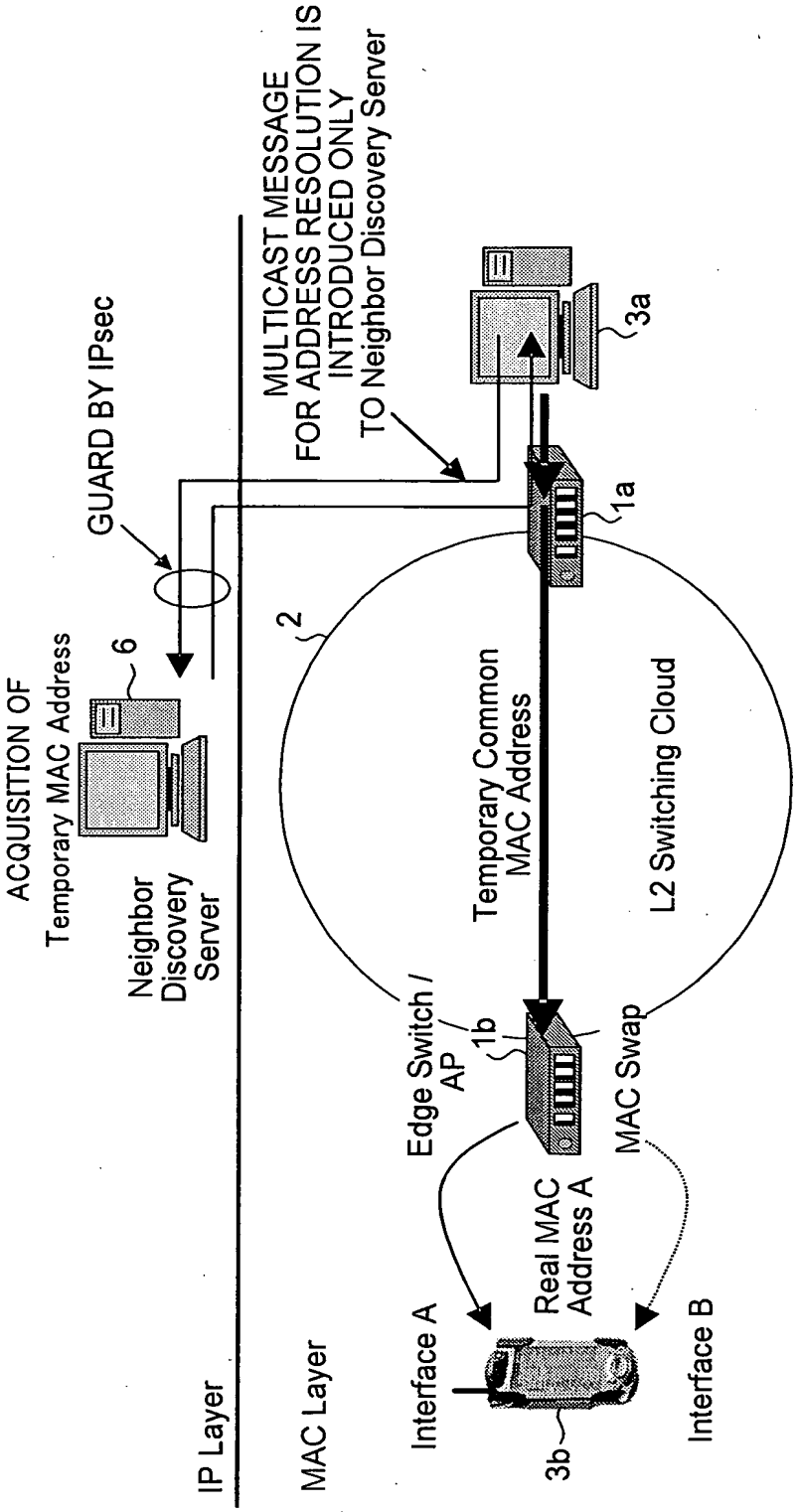

MULTICAST MESSAGE
FOR ADDRESS RESOLUTION IS
INTRODUCED ONLY
TO Neighbor Discovery Server
GUARD BY IPsec
ACQUISITION OF
Temporary MAC Address
6
Neighbor
Discovery
Server
2
3a
1a
Temporary Common
MAC Address
L2 Switching Cloud
Edge Switch /
AP
1b
MAC Swap
Real MAC
Address A
Interface A
Interface B
3b
IP Layer
MAC Layer

FIG.10

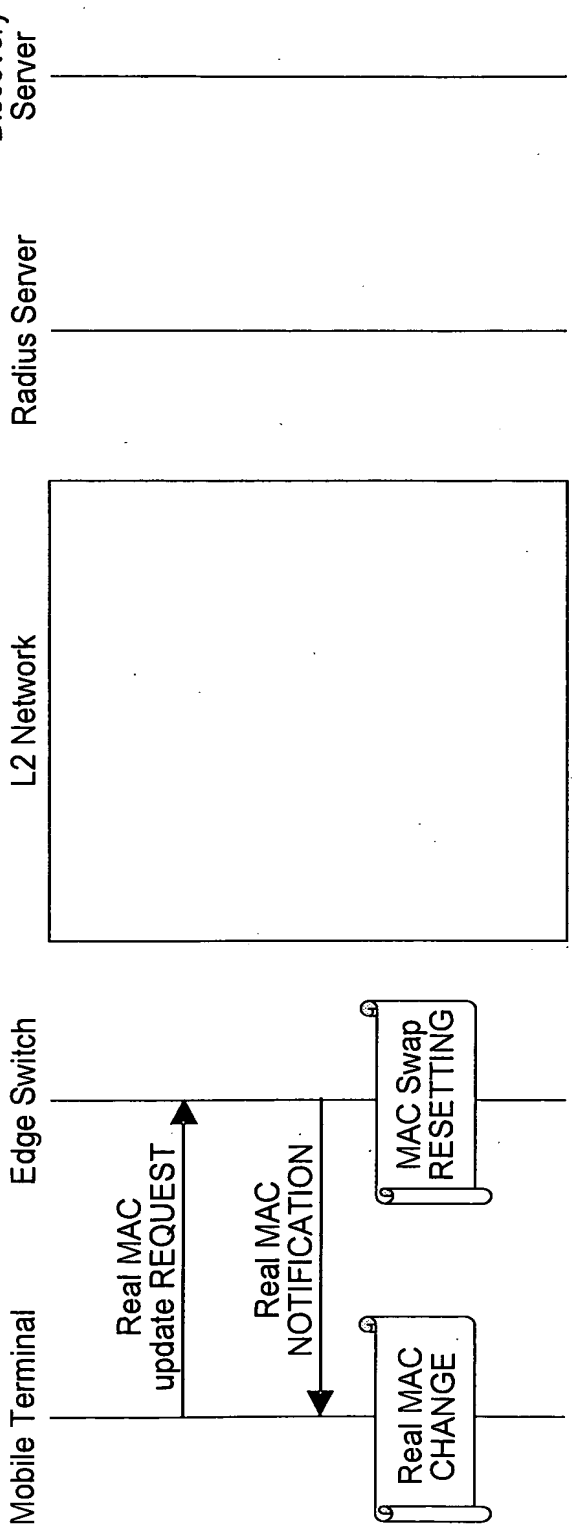

Neighbor Discovery Server
Radius Server
L2 Network
Edge Switch
Mobile Terminal
Real MAC update REQUEST
Real MAC NOTIFICATION
MAC Swap RESETTING
Real MAC CHANGE

FIG.11

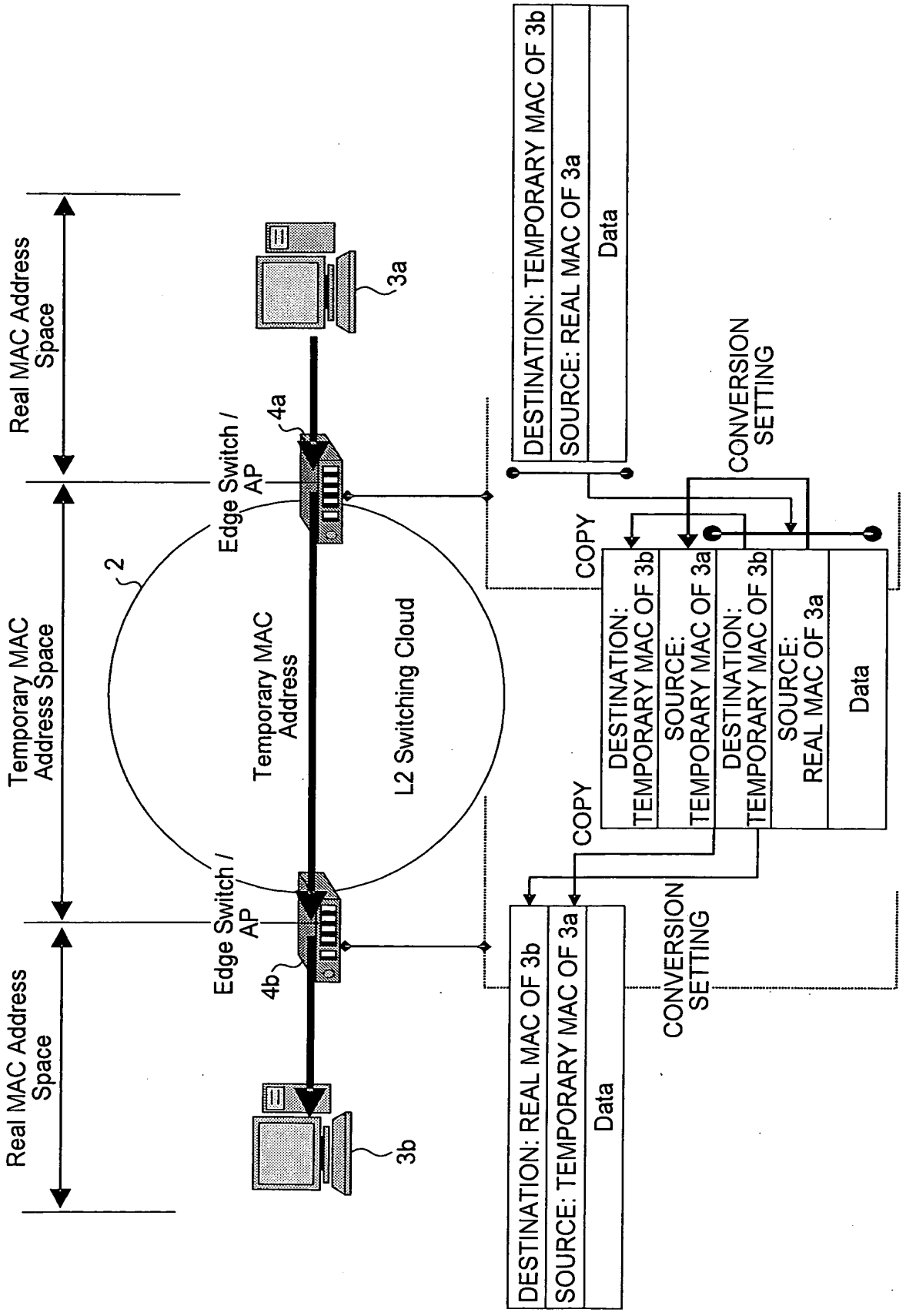

Real MAC Address Space
Temporary MAC Address Space
Real MAC Address Space
2
Edge Switch / AP
Edge Switch / AP
4a
4b
3a
3b
Temporary MAC Address
L2 Switching Cloud
DESTINATION: TEMPORARY MAC OF 3b
SOURCE: REAL MAC OF 3a
Data
CONVERSION SETTING
COPY
DESTINATION: TEMPORARY MAC OF 3b
SOURCE: TEMPORARY MAC OF 3a
DESTINATION: TEMPORARY MAC OF 3b
SOURCE: REAL MAC OF 3a
Data
COPY
CONVERSION SETTING
DESTINATION: REAL MAC OF 3b
SOURCE: TEMPORARY MAC OF 3a
Data

FIG.12

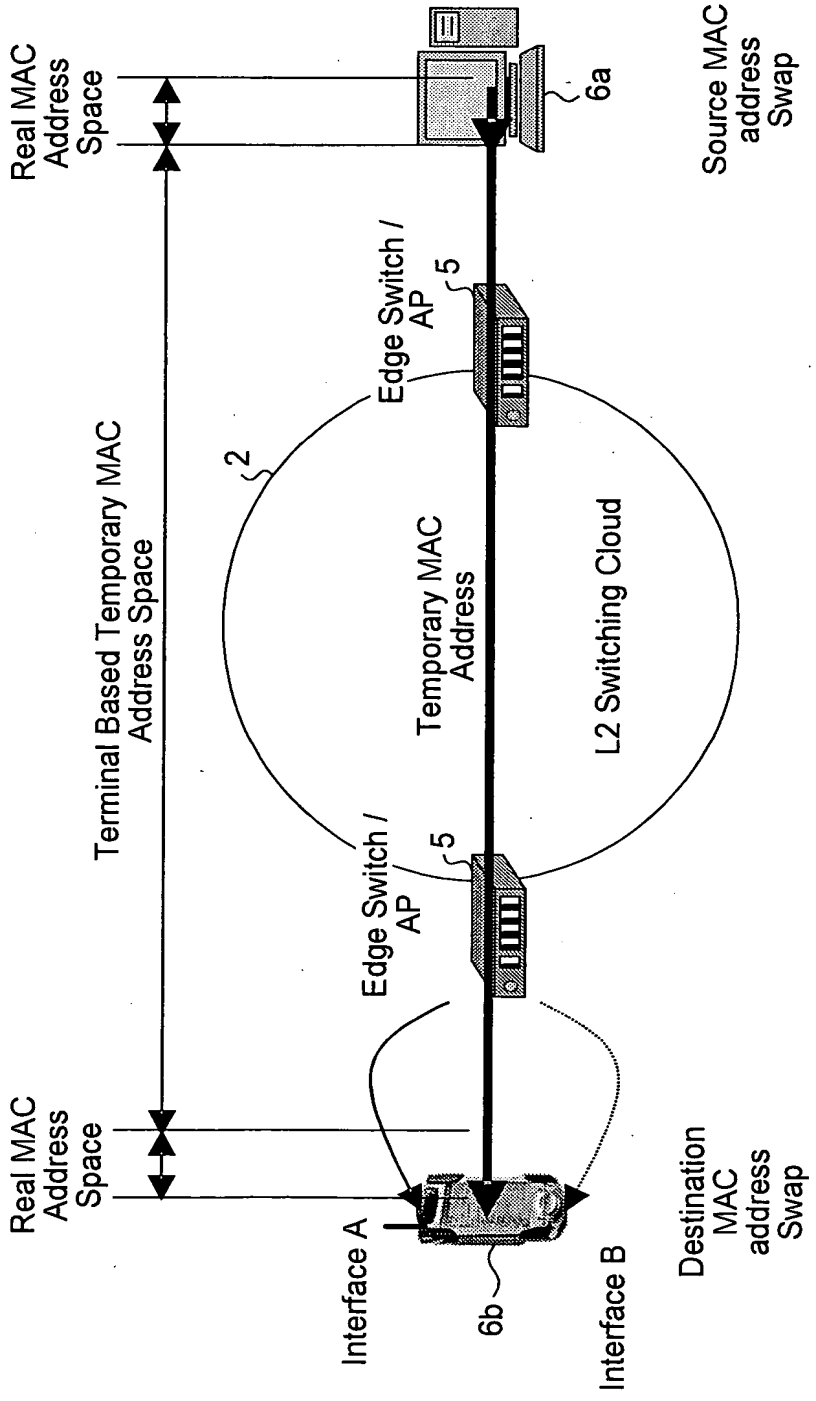
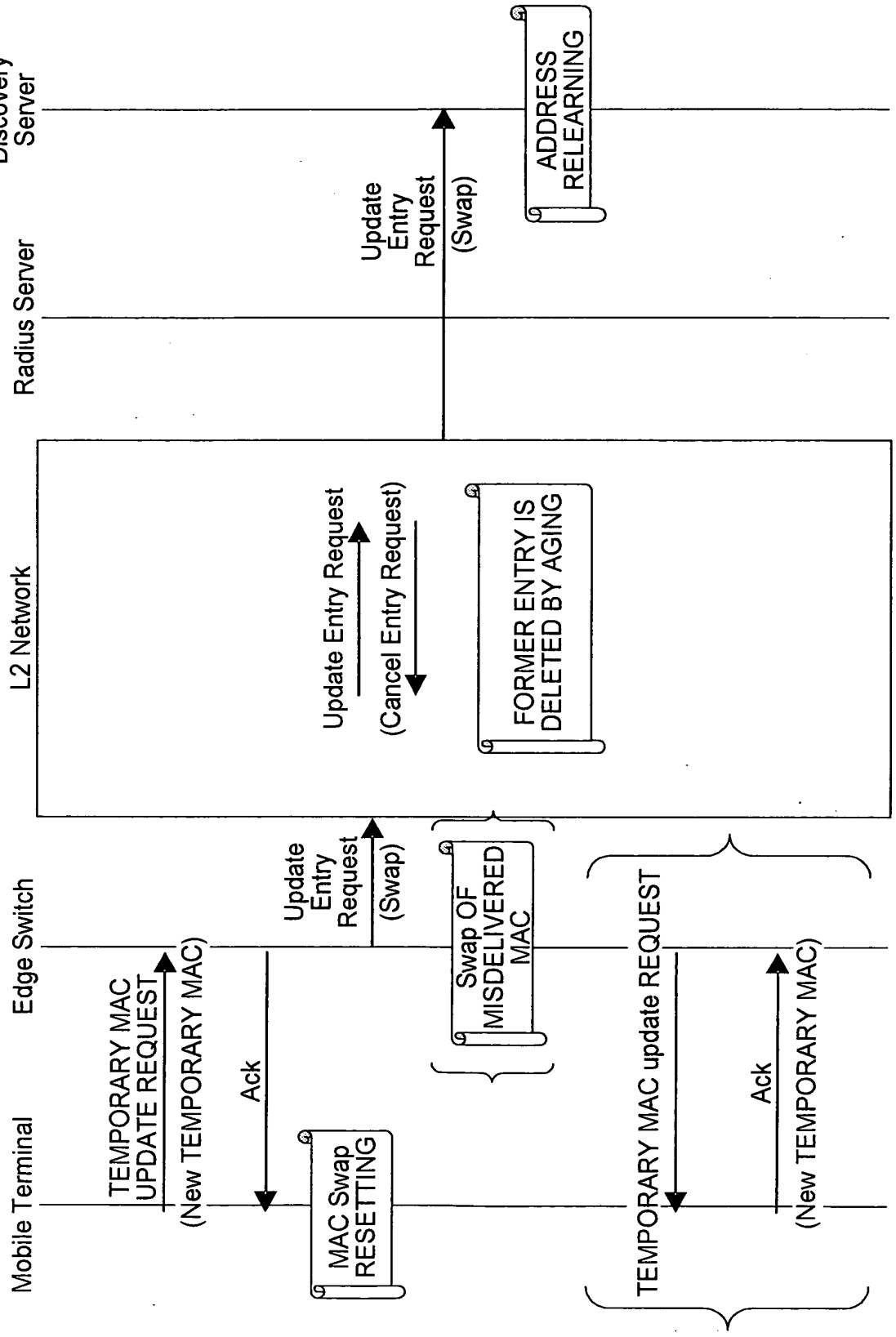

Real MAC Address Space
Terminal Based Temporary MAC Address Space
Real MAC Address Space
6a
Source MAC address Swap
Edge Switch / AP
5
2
Temporary MAC Address
L2 Switching Cloud
Edge Switch / AP
5
Interface A
6b
Interface B
Destination MAC address Swap

FIG.13


Neighbor Discovery Server
Radius Server
L2 Network
Edge Switch
Mobile Terminal
ADDRESS RELEARNING
Update Entry Request (Swap)
Update Entry Request
(Cancel Entry Request)
FORMER ENTRY IS DELETED BY AGING
Update Entry Request (Swap)
Swap OF MISDELIVERED MAC
TEMPORARY MAC UPDATE REQUEST
(New TEMPORARY MAC)
Ack
MAC Swap RESETTING
TEMPORARY MAC update REQUEST
Ack
(New TEMPORARY MAC)